



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

THE  
JOURNAL OF GEOLOGY

A Semi-Quarterly Magazine of Geology and  
Related Sciences.

---

EDITORS

T. C. CHAMBERLIN

R. D. SALISBURY,  
*Geographic Geology.*

C. R. VAN HISE,  
*Pre-Cambrian Geology.*

J. P. IDDINGS,  
*Petrology.*

C. D. WALCOTT,  
*Paleontologic Geology.*

R. A. F. PENROSE, JR.  
*Economic Geology.*

W. H. HOLMES,  
*Archeologic Geology.*

GEORGE BAUR,  
*Vertebrate Paleontology.*

ASSOCIATE EDITORS

SIR ARCHIBALD GEIKIE,  
*Great Britain.*

JOSEPH LE CONTE,  
*University of California.*

H. ROSENBUSCH,  
*Germany.*

G. K. GILBERT,  
*Washington.*

CHARLES BARROIS,  
*France.*

H. S. WILLIAMS,  
*Yale University.*

ALBRECHT PENCK,  
*Austria.*

J. C. BRANNER,  
*Leland Stanford, Jr. University.*

HANS REUSCH,  
*Norway.*

G. H. WILLIAMS,  
*Johns Hopkins University.*

GERARD DE GEER,  
*Sweden.*

I. C. RUSSELL,  
*University of Michigan.*

GEORGE M. DAWSON,  
*Canada.*

O. A. DERBY,  
*Brazil.*

---

VOLUME I

1893

---

CHICAGO

**The University Press of Chicago**

# CONTENTS OF VOLUME I.

## NUMBER I.

ON THE PRE-CAMBRIAN ROCKS OF THE BRITISH ISLES. Sir Archibald Geikie. . . . .	I
ARE THERE TRACES OF GLACIAL MAN IN THE TRENTON GRAVELS? W. H. Holmes. . . . .	15
GEOLOGY AS A PART OF A COLLEGE CURRICULUM. H. S. Williams. . . . .	38
THE NATURE OF THE ENGLACIAL DRIFT OF THE MISSISSIPPI BASIN. T. C. Chamberlin. . . . .	47
STUDIES FOR STUDENTS: Distinct Glacial Epochs and the Criteria for their Recognition. Rollin D. Salisbury. . . . .	61
EDITORIALS. . . . .	85
REVIEWS: On the Glacial Succession in Europe, James Geikie; by Rollin D. Salisbury. . . . .	90
ANALYTICAL ABSTRACTS OF CURRENT LITERATURE: The Sub-Glacial Origin of Certain Eskers; William Morris Davis. Studies in Structural Geology; Bailey Willis. The Catskill Delta in the Post-Glacial Hudson Estuary; William Morris Davis. Geological Survey of Alabama—Bulletin 4; C. Willard Hayes. The Correlation of Moraines with Raised Beaches of Lake Erie; Frank Leverett. The Climate of Europe during the Glacial Epoch; Clement Reid. On the Glacial Period and the Earth Movement Hypothesis; James Geikie. . . . .	95-100
ACKNOWLEDGMENTS. . . . .	101

## NUMBER II.

AN HISTORICAL SKETCH OF THE LAKE SUPERIOR REGION TO CAMBRIAN TIME. C. R. Van Hise. . . . .	113
THE GLACIAL SUCCESSION IN OHIO. Frank Leverett. . . . .	129
TRACES OF GLACIAL MAN IN OHIO. W. H. Holmes. . . . .	147
THE VOLCANIC ROCKS OF THE ANDES. Joseph P. Iddings. . . . .	164
ON THE USE OF THE TERMS POIKILITIC AND MICROPOIKILITIC IN PETROGRAPHY. George H. Williams. . . . .	176
STUDIES FOR STUDENTS. The Making of the Geological Time-Scale. H. S. Williams. . . . .	180
EDITORIALS. . . . .	198

ANALYTICAL ABSTRACTS OF CURRENT LITERATURE. The Age of the Earth; Charles King. The Age of the Earth; Warren Upham. Continental Problems; G. K. Gilbert. Measurement of Geological Time; T. Mellard Reade. Recent Archæological Explorations in the Valley of the Delaware; Chas. C. Abbott. The Drainage of the Jura; August F. Foerste. Deep-Sea Sounding; Capt. A. S. Barker. Observations and Experiments on the Fluctuations of the Level and Rate of Movement of Ground-Water; Franklin H. King. . . . .	202-208
ACKNOWLEDGMENTS. . . . .	209

## NUMBER III.

MALASPINA GLACIER. Israel C. Russell. . . . .	219
THE OSAR GRAVELS OF THE COAST OF MAINE. George H. Stone. . . . .	246
THE HORIZON OF DRUMLIN, OSAR AND KAME FORMATION. T. C. Chamberlin. . . . .	255
A CONTACT BETWEEN THE LOWER HURONIAN AND THE UNDERLYING GRANITE IN THE REPUBLIC TROUGH, NEAR REPUBLIC, MICHIGAN. Henry Lloyd Smyth. . . . .	268
A PLEISTOCENE MANGANESE DEPOSIT, NEAR GOLCONDA, NEVADA. R. A. F. Penrose, Jr. . . . .	275
STUDIES FOR STUDENTS: The Elements of the Geological Time-Scale. H. S. Williams. . . . .	283
EDITORIALS. . . . .	296
REVIEWS: Monographs of the U. S. Geological Survey, vol. XVII. The Flora of the Dakota Group; Leo Lesquereux, by David White. Cretaceous Fossil-Plants from Minnesota; Leo Lesquereux, by F. H. Knowlton. On the Organization of the Fossil-Plants of the Coal-Measures; W. C. Williamson, by F. H. Knowlton. . . . .	300-303
ANALYTICAL ABSTRACTS OF CURRENT LITERATURE; Summary of Current Pre-Cambrian North American Literature; C. R. Van Hise. . . . .	304
ACKNOWLEDGMENTS. . . . .	315

## NUMBER IV

ON THE TYPICAL LAURENTIAN AREA OF CANADA. Frank B. Adams. . . . .	325
MELILITE-NEPHELINE-BASALT AND NEPHELINE-BASANITE FROM SOUTHERN TEXAS. A. Osann. . . . .	341
SOME DYNAMIC PHENOMENA SHOWN BY THE BARABOO QUARTZITE RANGES OF CENTRAL WISCONSIN. C. R. Van Hise. . . . .	347
THE CHEMICAL RELATION OF IRON AND MANGANESE IN SEDIMENTARY ROCKS. R. A. F. Penrose, Jr. . . . .	356
SOME RIVERS OF CONNECTICUT. Henry B. Kümmel. . . . .	371
STUDIES FOR STUDENTS: Geological History of the Laurentian Basin. Israel C. Russell. . . . .	394
EDITORIALS. . . . .	409

# CONTENTS OF VOLUME I.

v

REVIEWS: Crystalline Rocks from the Andes; Untersuchungen an altkrystallinen Schiefergesteinen aus dem Gebiete der argentinischen Republik; B. Kühn. Untersuchung argentinischen Pegmatite, etc.; P. Sabersky. Untersuchungen an argentinischen Graniten, etc.; J. Romberg, by George H. Williams. The Mineral Industry, its Statistics, Technology and Trade in the United States and other Countries; Richard P. Rothwell, by R. A. F. Penrose, Jr. . . . .	411-414
ANALYTICAL ABSTRACTS OF CURRENT LITERATURE: A New Tæniopteroid Fern and its Allies; David White. Rainfall Types of the United States; Gen. A. W. Greely. Geographic Development of the Eastern Part of the Mississippi Drainage System; Lewis G. Westgate. On a New Order of Gigantic Fossils; Edwin H. Barbour. The Vertical Relief of the Globe; Hugh Robert Mill. . . . .	419-422
ACKNOWLEDGMENTS. . . . .	423

## NUMBER V.

THE BASIC MASSIVE ROCKS OF THE LAKE SUPERIOR REGION. W. S. Bayley. . . . .	433
NOTES ON THE STATE EXHIBITS IN THE MINES AND MINING BUILDING AT THE WORLD'S COLUMBIAN EXPOSITION, CHICAGO, R. A. F. Penrose, Jr. . . . .	457
THE LAS ANIMAS GLACIER. George. H. Stone. . . . .	471
STUDIES FOR STUDENTS: Conditions of Sedimentary Deposition; Bailey Willis. . . . .	476
EDITORIALS. . . . .	521
REVIEWS: Correlation Essays, Archean and Algonkian; C. R. Van Hise, by Rollin D. Salisbury. . . . .	525
ANALYTICAL ABSTRACTS OF CURRENT LITERATURE: Summary of Current Pre-Cambrian North American Literature. . . . .	532

## NUMBER VI.

THEORY OF THE ORIGIN OF MOUNTAIN RANGES. Joseph Le Conte. . . . .	542
ON THE MIGRATION OF MATERIAL DURING THE METAMORPHISM OF ROCK MASSES. Alfred Harker. . . . .	574
THE CORDILLERAN MESOZOIC REVOLUTION, Andrew C. Lawson. . . . .	579
SKETCH OF THE PRESENT STATE OF KNOWLEDGE CONCERNING THE BASIC MASSIVE ROCKS OF THE LAKE SUPERIOR REGION. W. S. Bayley. . . . .	587
A STUDY IN CONSANGUINITY OF ERUPTIVE ROCKS. Orville A. Derby. . . . .	597
A DISSECTED VOLCANO OF CRANDALL BASIN, WYOMING. Joseph P. Iddings. . . . .	606
NOTES ON THE LEAD AND ZINC DEPOSITS OF THE MISSISSIPPI VALLEY AND THE ORIGIN OF THE ORES. Arthur Winslow. . . . .	612
EDITORIALS. . . . .	620
REVIEWS: Eruptive Rocks of Montana; Waldemar Lindgren. A Sodalite-Syenite and other Rocks from Montana; W. Lindgren. Acmite-Trachyte from the Crazy Mountains, Montana; J. E. Wolff, by Joseph P. Iddings. . . . .	634

## NUMBER VII.

GEOLOGIC TIME, AS INDICATED BY THE SEDIMENTARY ROCKS OF NORTH AMERICA. Charles D. Walcott. . . . .	639
ON THE ORIGIN OF THE PENNSYLVANIA ANTHRACITE. John J. Stevenson. . . . .	677
THE BASIC MASSIVE ROCKS OF THE LAKE SUPERIOR REGION. W. S. Bayley. . . . .	688
ON THE GEOLOGICAL STRUCTURE OF THE MOUNT WASHINGTON MASS OF THE TACONIC RANGE—Plates III, IV. Wm. H. Hobbs. . . . .	717
EDITORIALS. . . . .	737
REVIEWS: Correlation Papers, The "Newark" System; Israel Cook Russell, by Wm. M. Davis. Text-Book of Comparative Geology; E. Kayser, Ph.D., by Rollin D. Salisbury. Iowa Geological Survey, vol. I. First Annual Report; Samuel Calvin, State Geologist, by C. H. Gordon. . . . .	740-747

## NUMBER VIII.

THE SUPPOSED GLACIATION OF BRAZIL. John C. Branner. . . . .	753
CAUSES OF MAGMATIC DIFFERENTIATION. Helge Bäckström. . . . .	773
THE GEOLOGICAL STRUCTURE OF THE HOUSATONIC VALLEY LYING EAST OF MOUNT WASHINGTON; Plates V, VI, VII. Wm. H. Hobbs. . . . .	780
THE NEWTONVILLE SAND-PLAIN. F. P. Gulliver. . . . .	803
THE STRUCTURES, ORIGIN, AND NOMENCLATURE OF THE ACID VOLCANIC ROCKS OF SOUTH MOUNTAIN. F. Bascom. . . . .	813
STUDIES FOR STUDENTS: Genetic Relationships Among Igneous Rocks; Joseph P. Iddings. . . . .	833
EDITORIALS. . . . .	845
REVIEWS: Recent Contributions to the Subject of Dynamometamorphism; A. Heim. C. Schmidt, L. Milch, M. P. Termier, by George H. Williams. Text-Book of Geology; Sir Archibald Geikie, by Rollin D. Salisbury. Bodengestaltende Wirkungen der Eiszeit; Dr. Aug. Böhm, by Wm. M. Davis. . . . .	850-859
ANALYTICAL ABSTRACTS OF CURRENT LITERATURE: Conditions of Appalachian Faulting; Bailey Willis and C. W. Hayes. Ueber Geröll-Thonschiefer glacialen Ursprungs in Kulm des Frankenwaldes; Ernest Kalkowski. . . . .	861-862
ACKNOWLEDGMENTS. . . . .	863